

DESCRIPTIVE MODEL OF CARBONATE-HOSTED ASBESTOS

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APPROXIMATE SYNONYM Arizona type (Shride, 1973).

DESCRIPTION Long-staple chrysotile asbestos in veins developed in tabular layers of serpentine that replaced silicated limestone adjacent to diabase sheets, sills, and dikes.

GENERAL REFERENCE Shride (1969).

GEOLOGIC ENVIRONMENT

Rock Types Serpentine, diabase, silicated limestone, cherty dolomite.

Textures Original bedding details of cherty dolomite preserved in fine-grained metamorphic limestone that includes nodular silicate masses partly to wholly replaced by serpentine.

Age Range Middle Proterozoic in Arizona, but may be of any age.

Depositional Environment Contact metamorphic aureole associated with injection of diabase magma into cherty dolomite.

Tectonic Setting Probably rifted or partly rifted continental terrane, as suggested by regionally voluminous alkalic olivine tholeiite diabase in nearshore marine and terrestrial strata.

Associated Deposit Types Contact-metamorphic magnetite. Talc deposits exist widely in similar physical settings.

DEPOSIT DESCRIPTION

Mineralogy Chrysotile asbestos, dense serpentine, magnetite, and calcite.

Texture/Structure Sharp-walled gash fracture and ribbon veins of cross-fiber chrysotile and calcite with occasional veins of dense chrysotile in massive serpentine. Veins mostly less than 0.3 cm wide but commonly 2-8 and rarely up to 25 cm.

Alteration Tremolite, diopside, and talc formed during prograde metamorphism were largely replaced by massive serpentine during retrograde metamorphism. Vein minerals were emplaced during late hydrothermal stage.

Ore Controls Favorable stratigraphic zones proximate (within 10 m) to diabase. Open folds formed on emplacement of the diabase were favorable sites for small-scale bedding and thrust faults which were repeatedly opened during metamorphism and mineralization.

EXAMPLES

Gila County, USAZ, Cuddappah district, INDA
southwestern USMT, Barberton-Caroline District, SAFR
Hopeh Province, CINA, near Kanye, BOTS (Sinclair, 1955)